I CLAIM:

1. An ocular scleral prosthesis comprising

an elongated body adapted to be implanted in an elongated pocket surgically formed within scleral tissue of an eye, said pocket being formed in the zone of the globe of said eye exterior to the ciliary body and extending generally circumferentially of said zone for a predetermined length,

said pocket having a base comprised of inner layers of said scleral tissue, a flap formed from outer layers of said scleral tissue, an anterior margin and a posterior margin,

said elongated body having a first surface and a second surface opposite said major surface, said first surface and said second surface being adapted to contact said base and said flap of said scleral pocket,

said first surface and said second surface being separated by a distance sufficient to elevate said flap and exert outwardly directed traction on at least said anterior margin of said pocket.

2. The scleral prosthesis of Claim 1 wherein said elongated body has a length that is greater than said predetermined length of said pocket.

3. The scleral prosthesis of Claim 1 wherein said prosthesis has a length of from about 3.0 millimeters to about 8.0 millimeters.

4. The scleral prosthesis of Claim 1 wherein said prosthesis has a length of from about 3.5 millimeters to about 6.0 millimeters.

5. The scleral prosthesis of Claim 1 wherein said prosthesis has a length of from about 4.0 millimeters to about 5.0 millimeters.

6. The scleral prosthesis of Claim 12 wherein said prosthesis has a length of about 4.5 millimeters.

7. The scleral prosthesis of Claim 1 wherein said first surface is a major surface adapted to contact a major fraction of said base or said flap of said scleral pocket.

8. The scleral prosthesis of Claim 7 wherein said elongated body has a length that is greater than said length of said pocket.

9. The scleral prosthesis of Claim 7 wherein said major surface has a concave curvature.

10. The prosthesis of Claim 9 wherein said curvature is generally adapted to natural curvature of said scleral tissue in which said scleral pocket is formed.

11. The prosthesis of Claim 9 wherein said concave surface has a radius of curvature of from about 7 millimeters to about 11 millimeters.

12. The prosthesis of Claim 9 wherein said concave surface has a radius of curvature of from about 8 millimeters to about 10 millimeters.

13. The prosthesis of Claim 9 wherein said concave surface has a radius of curvature of about 9 millimeters.

14. The scleral prosthesis of Claim 7 wherein said second surface has an antero-posterior dimension about the same as said major surface.

15. The scleral prosthesis of Claim 7 wherein said major surface and said second surface are spaced apart a distance of from about 0.3 millimeters to about 0.9 millimeters.

16. The scleral prosthesis of Claim 15 wherein said major surface and said second surface are spaced apart a distance of from about 0.5 millimeters to about 0.7 millimeters.

17. The scleral prosthesis of Claim 15 wherein said major surface and said second surface are spaced apart a distance of about 0.6 millimeters.

18. The scleral prosthesis of Claim 7 wherein said prosthesis has a length of from about 3.0 millimeters to about 8.0 millimeters.

19. The scleral prosthesis of Claim 18 wherein said prosthesis has a length of from about 3.5 millimeters to about 6.0 millimeters.

20. The scleral prosthesis of Claim 18 wherein said prosthesis has a length of from about 4.0 millimeters to about 5.0 millimeters.

21. The scleral prosthesis of Claim 18 wherein said prosthesis has a length of about 4.5 millimeters.

22. The scleral prosthesis of Claim 7 wherein said prosthesis has an antero-posterior dimension of from about 0.3 millimeters to about 0.9 millimeters.

23. The scleral prosthesis of Claim 22 wherein said prosthesis has an antero-posterior dimension of from about 0.5 millimeters to about 0.7 millimeters.

24. The scleral prosthesis of Claim 22 wherein said prosthesis has an antero-posterior dimension of about 0.6 millimeters.

25. An ocular scleral prosthesis according to Claim 1 comprising

a base member having an elongated planform with a major dimension, a minor dimension, an inner major surface and an outer major surface, said outer major surface being generally smooth and adapted to contact ocular tissue within a pocket surgically formed within scleral tissue of an eye, and

a ridge member on said inner major surface of said base member, extending along at least a substantial fraction of said major dimension of said base.

26. The prosthesis of Claim 25 wherein said anterior rim is anteriorly concave and said posterior rim is posteriorly convex.

27. The prosthesis of Claim 25 wherein said outer major surface of said base is planar.

28. The prosthesis of Claim 25 wherein said outer major surface of said base is outwardly convex along said major dimension.

29. The prosthesis of Claim 25 wherein said planform is generally rectangular.

30. The prosthesis of Claim 25 wherein said planform has semicircular ends.

31. The prosthesis of Claim 25 wherein said planform is elliptical.

32. The prosthesis of Claim 25 wherein said ridge extends along substantially the entire major dimension of said base.

33. The prosthesis of Claim 25 wherein said ridge extends along a portion of said major dimension of said base member.

34. The prosthesis of Claim 25 wherein said ridge has a maximum height above said base located intermediate between said anterior edge and said posterior edge.

35. The prosthesis of Claim 34 wherein said maximum height of said ridge is located less than halfway from said anterior edge to said posterior edge.

36. The prosthesis of Claim 34 wherein said maximum height of said ridge is located about 12 % of the distance from said anterior edge to said posterior edge.

37. The prosthesis of Claim 25 wherein said maximum height of said ridge is located at said anterior edge.

38. The prosthesis of Claim 25 wherein said major dimension is about 5 millimeters.

39. The prosthesis of Claim 25 wherein said minor dimension is about 2 millimeters.

40. The prosthesis of Claim 1 wherein said prosthesis is made of a physiologically acceptable metal.

41. The prosthesis of Claim 40 wherein said prosthesis is made of metal selected from the group consisting of titanium, platinum, gold, tantalum, stainless steel, and physiologically acceptable alloys.

42. The prosthesis of Claim 1 wherein said prosthesis is made of a ceramic material.

43. The prosthesis of Claim 42 wherein said ceramic is selected from the group consisting of porcelain, alumina, silica, silicon carbide, and high-strength glasses.

44. The prosthesis of Claim 1 wherein said prosthesis is made of a synthetic resin.

45. The prosthesis of Claim 44 wherein said synthetic resin is selected from the group consisting of poly(methyl methacrylate), polyethylene, polypropylene, poly(tetrafluoroethylene), polycarbonate, and silicone resins.

46. The prosthesis of Claim 1 wherein said prosthesis is made of a reinforced composite material.

47. The prosthesis of Claim 46 wherein said reinforced composite material is a glass-fiber-reinforced synthetic resin.

48. The prosthesis of Claim 46 wherein said reinforced composite material is a carbon-fiber-reinforced material.

49. The prosthesis of Claim 46 wherein said reinforced composite material is carbon-fiber-reinforced carbon.

50. The prosthesis of Claim 1 wherein said prosthesis is made of flexible material and is provided with an internal cavity filled with a fluid or a gel.

51. The prosthesis of Claim 50 wherein said fluid is water or a

physiological saline solution.

52. The prosthesis of Claim 44 wherein said gel is a silicone material, or collagen, or gelatin.

53. The prosthesis of Claim 44 wherein said fluid is a physiologically acceptable oil.

54. The prosthesis of Claim 44 wherein said fluid is a silicone oil.

55. The prosthesis of Claim 1 wherein said prosthesis is provided with at least one hole for the passage of a suture.

56. A method for increasing the amplitude of accommodation of an eye comprising

forming a plurality of elongated pockets, each having a lengthwise dimension, in a sclera of said eye, said lengthwise dimension being oriented generally transversely to a meridian of said eye,

said eye having a sclera forming a generally globular outer layer of said eye, a transparent cornea forming

an anterior surface of said eye, a limbus formed by the junction of said cornea with said sclera, a generally circular ciliary body located inwardly of said sclera posterior to said limbus, and a crystalline lens located centrally within said ciliary body and having an equator, said equator of said lens defining a plane intersecting said sclera in a generally circular intersection posterior to said limbus,

said pockets having an anterior margin and a posterior margin, said anterior margin being located a distance of from about 0.5 millimeters to about 4.5 millimeters posterior to said limbus; and

positioning in each of said pockets a prosthesis according to Claim 1.

57. A method for treating presbyopia comprising

forming a plurality of elongated pockets, each having a lengthwise dimension, in a sclera of said eye, said lengthwise dimension being oriented generally transversely to a meridian of said eye,

said eye having a sclera forming a generally globular outer layer of said eye, a transparent cornea forming an anterior surface of said eye, a limbus formed by the junction of said cornea with said sclera, a generally circular ciliary body located inwardly of said sclera posterior to said limbus, and a crystalline lens located centrally within said ciliary body and having an equator, said equator of said lens defining a plane intersecting said sclera in a generally circular intersection posterior to said limbus,

said pockets having an anterior margin and a posterior margin, said anterior margin being located a distance of from about 0.5 millimeters to about 4.5 millimeters posterior to said limbus; and

positioning in each of said pockets a prosthesis according to Claim 1.

58. A method for treating hyperopia comprising

forming a plurality of elongated pockets, each having a lengthwise dimension, in a sclera of said eye, said lengthwise dimension being oriented generally transversely to a meridian of said eye,

said eye having a sclera forming a generally globular outer layer of said eye, a transparent cornea forming an anterior surface of said eye, a limbus formed by the junction of said cornea with said sclera, a generally circular ciliary body located inwardly of said sclera posterior to said limbus, and a crystalline lens located centrally within said ciliary body and having an equator, said equator of said lens defining a plane intersecting said sclera in a generally circular intersection posterior to said limbus,

said pockets having an anterior margin and a posterior margin, said anterior margin being located a distance of from about 0.5 millimeters to about 4.5 millimeters posterior to said limbus; and

positioning in each of said pockets a prosthesis according to Claim 1.

59. A method for treating primary open angle glaucoma comprising

forming a plurality of elongated pockets, each having a lengthwise dimension, in a sclera of said eye, said lengthwise dimension being oriented generally transversely to a meridian of said eye,

said eye having a sclera forming a generally globular outer layer of said eye, a transparent cornea forming an anterior surface of said eye, a limbus formed by the junction of said cornea with said sclera, a generally circular ciliary body located inwardly of said sclera posterior to said limbus, and a crystalline lens located centrally within said ciliary body and having an equator, said equator of said lens defining a plane intersecting said sclera in a generally circular intersection posterior to said limbus,

said pockets having an anterior margin and a posterior margin, said anterior margin being located a distance of from about 0.5 millimeters to about 4.5 millimeters posterior to said limbus; and

positioning in each of said pockets a prosthesis according to Claim 1.

60. A method for treating ocular hypertension comprising

forming a plurality of elongated pockets, each having a lengthwise dimension, in a sclera of said eye, said lengthwise dimension being oriented generally transversely to a meridian of said eye,

said eye having a sclera forming a generally globular outer layer of said eye, a transparent cornea forming an anterior surface of said eye, a limbus formed by the junction of said cornea with said sclera, a generally circular ciliary body located inwardly of said sclera posterior to said limbus, and a crystalline lens located centrally within said ciliary body and having an equator, said equator of said lens defining a plane intersecting said sclera in a generally circular intersection posterior to said limbus,

said pockets having an anterior margin and a posterior margin, said anterior margin being located a distance of from about

0.5 millimeters to about 4.5 millimeters posterior to said limbus; and

positioning in each of said pockets a prosthesis according to Claim 1, with said anterior edge of said prosthesis oriented toward the anterior portion of said eye and said inner major surface with said ridge oriented inwardly.